WHAT IS CLAIMED IS:

1. An adhesion promotion composition for enhancing adhesion between a copper conducting layer and a dielectric material during manufacture of a printed circuit board, the adhesion promotion composition comprising a corrosion inhibitor, an inorganic acid, an oxidizing agent, and an alcohol which is effective to increase copper-loading in the composition, and the adhesion promotion composition being initially substantially free of transition metals having a tendency to destabilize the oxidizing agent.

2. The adhesion promotion composition of claim 1 wherein the alcohol is selected from among monohydric alcohols.

3. The adhesion promotion composition of claim 1 wherein the alcohol is selected from among monohydric alcohols and constitutes between about 0.5 wt% and about 20 wt% of the composition.

4. The adhesion promotion composition of claim 1 wherein the alcohol is selected from among oligomeric monohydric alcohols.

5. The adhesion promotion composition of claim 1 wherein the alcohol is selected from among oligomeric monohydric alcohols and constitutes between about 0.5 wt% and about 20 wt% of the composition.

6. The adhesion promotion composition of claim 1 wherein the alcohol is selected from among dihydric alcohols.

7. The adhesion promotion composition of claim 1 wherein the alcohol is selected from among dihydric alcohols and constitutes between about 0.5 wt% and about 20 wt% of the composition.

8. The adhesion promotion composition of claim 1 wherein the alcohol is selected from among oligomeric dihydric alcohols.

9. The adhesion promotion composition of claim 1 wherein the alcohol is selected from among oligomeric dihydric alcohols and constitutes between about 0.5 wt% and about 20 wt% of the composition.

10. The adhesion promotion composition of claim 1 wherein the alcohol is selected from among trihydric alcohols.

11. The adhesion promotion composition of claim 1 wherein the alcohol is selected from among trihydric alcohols and constitutes between about 0.5 wt% and about 20 wt% of the composition.

12. The adhesion promotion composition of claim 1 wherein the alcohol is selected from among oligomeric trihydric alcohols.

13. The adhesion promotion composition of claim 1 wherein the alcohol is selected from among oligomeric trihydric alcohols and constitutes between about 0.5 wt% and about 20 wt% of the composition.

14. The adhesion promotion composition of claim 1 wherein the alcohol is selected from among primary alcohols.

15. The adhesion promotion composition of claim 1 wherein the alcohol is selected from among primary alcohols and constitutes between about 0.5 wt% and about 20 wt% of the composition.

16. The adhesion promotion composition of claim 1 wherein the alcohol is selected from among oligomeric primary alcohols.

17. The adhesion promotion composition of claim 1 wherein the alcohol is selected from among oligomeric primary alcohols and constitutes between about 0.5 wt% and about 20 wt% of the composition.

18. The adhesion promotion composition of claim 1 wherein the alcohol is selected from among secondary alcohols.

19. The adhesion promotion composition of claim 1 wherein the alcohol is selected from among secondary alcohols and constitutes between about 0.5 wt% and about 20 wt% of the composition.

20. The adhesion promotion composition of claim 1 wherein the alcohol is selected from among oligomeric secondary alcohols.

21. The adhesion promotion composition of claim 1 wherein the alcohol is selected from among oligomeric secondary

alcohols and constitutes between about 0.5 wt% and about 20 wt% of the composition.

22. The adhesion promotion composition of claim 1 wherein the alcohol is selected from among tertiary alcohols.

23. The adhesion promotion composition of claim 1 wherein the alcohol is selected from among tertiary alcohols and constitutes between about 0.5 wt% and about 20 wt% of the composition.

24. The adhesion promotion composition of claim 1 wherein the alcohol is selected from among oligomeric tertiary alcohols.

25. The adhesion promotion composition of claim 1 wherein the alcohol is selected from among oligomeric tertiary alcohols and constitutes between about 0.5 wt% and about 20 wt% of the composition.

26. The adhesion promotion composition of claim 1 wherein the alcohol is triethylene glycol.

27. The adhesion promotion composition of claim 1 wherein the alcohol is triethylene glycol and constitutes between about 0.5 wt% and about 20 wt% of the composition.

28. The adhesion promotion composition of claim 1 wherein the composition has a copper-loading capacity of at least about 30 grams copper per liter composition.

29. The adhesion promotion composition of claim 1 wherein the alcohol is selected from among monohydric alcohols, dihydric alcohols, trihydric alcohols, primary alcohols, secondary alcohols, and tertiary alcohols, and wherein the composition has a copper-loading capacity of at least about 30 grams copper per liter composition.

30. The composition of claim 1 wherein less than about 0.1 volume % of Cu-containing sludge is formed at 120 hours under ambient conditions when the composition is loaded with between 40 and 50 g/liter Cu ions.

31. The composition of claim 1 wherein the alcohol is selected from among monohydric alcohols, dihydric alcohols, trihydric alcohols, primary alcohols, secondary alcohols, and tertiary alcohols, and wherein less than about 0.1 volume % of Cu-containing sludge is formed at 120 hours under ambient conditions when the composition is loaded with between 40 and 50 g/liter Cu ions.

32. The adhesion promotion composition of claim 1 further comprising an anionic surfactant.

33. The adhesion promotion composition of claim 1 further comprising an anionic surfactant selected from among polymeric, oligomeric, and monomeric alcohol derivatives.

34. The adhesion promotion composition of claim 1 further comprising an anionic surfactant selected from among alcohol sulfates, sulfonates, and ethoxylates.

35. The adhesion promotion composition of claim 1 further comprising dodecylbenzene sulfonic acid (DDBSA) as an anionic surfactant.

36. The adhesion promotion composition of claim 1 further comprising a nonionic surfactant.

37. The adhesion promotion composition of claim 36 wherein the nonionic surfactant is an ethoxylated alcohol derivative.

38. The adhesion promotion composition of claim 37 wherein the nonionic surfactant is polyoxyethylene nonylphenol.

39. The adhesion promotion composition of claim 1 wherein the inorganic acid constitutes at least about 30 wt% of the composition.

40. The adhesion promotion composition of claim 1 wherein the inorganic acid is a mixture of sulfuric acid and nitric acid and constitutes at least about 30 wt% of the composition.

41. The adhesion promotion composition of claim 1 further comprising an anionic surfactant and a nonionic surfactant; wherein the inorganic acid is a mixture of sulfuric acid and nitric acid and constitutes at least about 30 wt% of the composition; and wherein the alcohol is selected from among monohydric alcohols, dihydric alcohols, trihydric alcohols, primary alcohols, secondary alcohols, and tertiary alcohols and constitutes between about 0.5 wt % and about 20 wt% of the composition.

42. The adhesion promotion composition of claim 41 wherein the copper-loading of the composition is characterized by less than about 0.1 volume % of Cu-containing sludge being formed at 120 hours under ambient conditions when the composition is loaded with between 40 and 50 g/liter Cu ions.

43. The adhesion promotion composition of claim 1 wherein the composition is substantially free of thiourea-based complexing agents, and the corrosion inhibitor is benzotriazole, the inorganic acid comprises sulfuric acid and nitric acid, the oxidizing agent is hydrogen peroxide, and the alcohol is triethylene glycol in the following proportions by weight percent:

0.5 to 8 wt% H_2O_2
16 to 25 wt% H_2SO_4
0.1 to 10 wt% HNO_3
0.1 to 2 wt% 1,2,3-benzotriazole
0.01 to 5 wt% triethylene glycol.

44. The adhesion promotion composition of claim 1 wherein the composition is substantially free of thiourea-based complexing agents, and the corrosion inhibitor is benzotriazole, the inorganic acid comprises sulfuric acid and nitric acid, the oxidizing agent is hydrogen peroxide, and the alcohol is triethylene glycol in the following proportions:

0.5 to 8 wt% H_2O_2
16 to 25 wt% H_2SO_4
0.1 to 10 wt% HNO_3
0.1 to 2 wt% 1,2,3-benzotriazole
0.01 to 5 wt% triethylene glycol;

and wherein the composition further comprises the following:

0.05 to 2 wt% 2-ethyloxosulfonate

0.0001 to 2 wt% dodecylbenzene sulfonic acid

0.0001 to 2 wt% polyoxyethylene nonylphenol.

45. An adhesion promotion composition for enhancing adhesion between a copper conducting layer and a dielectric material during manufacture of a printed circuit board, the adhesion promotion composition comprising a corrosion inhibitor, an inorganic acid, an oxidizing agent, and an anionic surfactant, and the adhesion promotion composition being initially substantially free of transition metals having a tendency to destabilize the oxidizing agent.

46. The adhesion promotion composition of claim 45 wherein the anionic surfactant is selected from among polymeric, oligomeric, and monomeric alcohol derivatives.

47. The adhesion promotion composition of claim 46 wherein the anionic surfactant is selected from among alcohol sulfates, sulfonates, and ethoxylates.

48. The adhesion promotion composition of claim 46 wherein the anionic surfactant is dodecylbenzene sulfonic acid (DDBSA).

49. The adhesion promotion composition of claim 45 wherein the anionic surfactant is sodium 2-ethylhexyl sulfate.

50. The adhesion promotion composition of claim 45 wherein the inorganic acid comprises nitric acid.

51. An adhesion promotion composition for enhancing adhesion between a copper conducting layer and a dielectric material by formation of an organometallic conversion coating during manufacture of a printed circuit board, the adhesion promotion composition comprising a corrosion inhibitor, an inorganic acid, and a nonionic surfactant, and the adhesion promotion composition being initially substantially free of transition metals having a tendency to destabilize the oxidizing agent.

52. The adhesion promotion composition of claim 51 wherein the nonionic surfactant is an ethoxylated alcohol derivative.

53. The adhesion promotion composition of claim 52 wherein the nonionic surfactant is polyoxyethylene nonylphenol.

54. An adhesion promotion composition for enhancing adhesion between a copper conducting layer and a dielectric material by formation of an organometallic conversion coating during manufacture of a printed circuit board, the adhesion promotion composition comprising a corrosion inhibitor, an inorganic acid, and a nonylphenolic nonionic surfactant.

55. An adhesion promotion composition for enhancing adhesion between a copper conducting layer and a dielectric material during manufacture of a printed circuit board, the adhesion promotion composition comprising a corrosion inhibitor, nitric acid, and an alcohol which is effective to increase copper-loading in the composition.

56. The adhesion promotion composition of claim 55 wherein the composition further comprises an oxidizing agent and is initially substantially free of transition metal ions having a tendency to destabilize the oxidizing agent.

57. The adhesion promotion composition of claim 56 wherein the oxidizing agent comprises hydrogen peroxide.

58. The adhesion promotion composition of claim 57 wherein the composition is substantially free of thiourea-based complexing agents.

59. A process for enhancing adhesion between a copper conducting layer and a dielectric material during manufacture of a printed circuit board, the process comprising exposing the copper conducting layer to an adhesion promotion composition comprising a corrosion inhibitor, an inorganic acid, an oxidizing agent, and an alcohol which is effective to increase copper-loading in the composition, wherein the adhesion promotion composition is initially substantially free of transition metals having a tendency to destabilize the oxidizing agent, to thereby yield a microroughened copper surface.

60. The process of claim 59 wherein the alcohol is selected from among monohydric alcohols, dihydric alcohols, trihydric alcohols, primary alcohols, secondary alcohols, and tertiary alcohols and constitutes between about 0.5 wt % and about 20 wt% of the composition.

61. The process of claim 60 comprising applying a pre-preg insulating layer directly to the microroughened copper surface.